

### REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

The specification has been amended to include the priority claim, as previously claimed in the application data sheet filed with the application on July 25, 2003, and updates the status of the parent application, U.S. Patent Application 09/869,155, as now being abandoned. Further, the specification has also been amended to remove the http:// prefix to the internet address provided on page 7, line 31. No new matter has been added.

Claims 12, 48, and 50-52 are currently being amended. Support for these amendments can be found in the specification, *inter alia*, on page 1, lines 34-35, page 4, lines 9-11; page 13, lines 6-7; page 19, lines 3-5 and 25-32; pages 14-16; page 29, lines 11-13; and the Examples.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier. No new matter has been added.

After amending the claims as set forth above, claims 10, 12, 13, 44-58 are now pending in this application, of which claims 10, 13, 44-47 are presently withdrawn.

#### **A. Restriction**

Applicants gratefully acknowledge the Examiner's rejoinder of claims 12, 49 and 55 with claims 48, 50-55.

### **B. Objections**

The Examiner objected to the specification for containing browser-executable code or hyperlinks, specifically the hyperlink on page 7, line 31. According to M.P.E.P. § 608.01 (Eighth Edition, revised August 2006), such impermissible hyperlinks are “a URL placed between these symbols "< >" and http:// followed by a URL address”, which are recognized by the USPTO website as hyperlinks. The specification has been amended to replace that paragraph and the web address contained within to remove the http:// prefix. The USPTO website should not recognize the address as a hyperlink. Therefore, Applicants respectfully request that the objection be withdrawn as the web address is no longer browser-executable.

Further, the priority claim has been amended to update the status of parent application 09/869,155, which is now abandoned. The priority claim, which was timely filed with the application on July 25, 2003, has also been inserted into the first paragraph of the specification.

Finally, claim 12 has been amended to no longer recite “making same” and claim 48 no longer depends from a non-elected claim. Applicants respectfully request that the objections to these claims be withdrawn.

### **C. Rejections under 35 U.S.C. § 112**

The Examiner rejected claim 12 under 35 U.S.C. § 112, second paragraph, for allegedly being indefinite for reciting “a baking product or a substance for making the same comprising or prepared from an amino acid sequence presented as SEQ ID NO:5.” Office Action, page 4. Applicants traverse this rejection as it may apply to the amended claim.

First, the Examiner appears to require that the amino acid sequence of SEQ ID NO:5 retain its enzymatic function in the final bakery product. Claim 12 recites “an amino acid sequence presented as SEQ ID NO:5”, which requires the presence of the polypeptide but does not require enzymatic activity. Even after baking, this amino acid sequence will still be

present in the bakery product. Whether the amino acid sequence has its enzymatic function after baking is irrelevant as the activity is most important during the dough-making process prior to baking. Since the dough contains the amino acid sequence, then the final baked product will as well. The claim as written, which requires the presence of an amino acid sequence of SEQ ID NO:5, clearly claims the inventive subject matter and, therefore, this rejection should be withdrawn.

The Examiner has required clarification for the term “bakery product”. A bakery product is a foodstuff that is baked. The specification provides examples of such baked foodstuffs on page 19, lines 30-32 of the specification and include items that are not typically sold in a bakery. A person of skill in the art would clearly understand that a bakery product is a foodstuff that is baked. Accordingly, Applicants respectfully request that the rejection be withdrawn.

The Examiner has asserted that “a substance (e.g. dough)” is unclear and requires that substance or dough be deleted. Claim 12 has been amended to delete “(e.g. dough)” so that it now recites in part “a substance for making a bakery product”. A person of skill in the art would readily know of substances for making a bakery product, and the specification provides examples of such substances throughout the specification, particularly in the examples. This phrase is clear and unambiguous and therefore, this rejection should be withdrawn.

Claim 12 has also been amended to remove “or prepared from” and does not recite “represented by”. Applicants respectfully request that the rejection be withdrawn.

Claim 51 was rejected under 35 U.S.C. § 112, second paragraph, for allegedly being indefinite for reciting “said bacterial xylanase is a *Bacillus subtilis* strain.” Claim 51 has been amended to recite “said bacterial xylanase is from a *Bacillus subtilis* strain.” Since the claim now clearly indicates the source of the bacterial xylanase, Applicants respectfully request that the rejection be withdrawn.

Claim 52 was rejected under 35 U.S.C. § 112, second paragraph, for allegedly being indefinite for reciting “substantially free of glucanase enzymes.” Claim 52 has been amended to recite “free of detrimental levels of glucanase enzymes”, which is described in the

specification on page 14, line 32 through page 16, line 16. Specifically, the specification states “the term ‘detrimental level’ means an amount of glucanase is present such that the benefits from the xylanase are masked by the adverse effect of the glucanase enzymes.” Specification, page 14, line 32, through page 15, line 2. The specification also provides for an assay for determining the presence of glucanase enzymes in the “Gluconase Assay Method” and “Gluconase Protocol” described on page 15. As the term is clearly defined and assays for ascertaining the referenced levels of glucanase enzyme is provided, Applicants respectfully request that the rejection be withdrawn.

#### **D. Rejections under 35 U.S.C. § 102**

Claim 12 was rejected under 35 U.S.C. § 102(b) for allegedly being anticipated by Paice *et al.* Arch. Microbiol. 144:201-206 (1986) (hereinafter “Paice”) and by Wolf *et al.*, *Microbiology* 414:281-290 (1995) (“hereinafter “Wolf”). The database entries also cited by the Examiner appear to link to these same articles. Specifically, the Examiner alleged that these two references teach a buffer comprising an amino acid with the sequence of SEQ ID NO:5 and having xylanase activity, and asserts the buffer could be used in the making of a bakery product. Applicants respectfully traverse this rejection as it may apply to the amended claims.

An anticipation rejection under 35 U.S.C. § 102(b) requires a showing that each limitation of a claim is found in a single reference, practice, or device. *See In re Donohue*, 766 F.2d 531, 226 USPQ 619, 621 (Fed. Cir. 1985). The claimed invention is a bakery product or substance for making a bakery product comprising an amino acid sequence comprising SEQ ID NO:5. As discussed previously, a bakery product is a foodstuff that is baked. However, the references cited by the Examiner do not teach adding the polypeptide of SEQ ID NO:5 to any foodstuff, much less a bakery product or substance for making a bakery product. Indeed, Paice teaches the use of xylanases for removing hemicelluloses from wood pulp, an industrial, not edible, application. Paice, p. 201, first paragraph. Nowhere does Paice teach the polypeptide of SEQ ID NO:5 might be suitable or safe for consumption, nor

does it present it in an edible form suitable for inclusion in the present invention. Similarly, Wolf fails to teach that a polypeptide of SEQ ID NO:5 might be included in a bakery product or substance for making a bakery product, or that this amino acid sequence might be safe or suitable for consumption. Since neither reference teaches these main, essential features of the invention, they cannot anticipate the claimed invention. Therefore, Applicants respectfully request that the rejection be withdrawn.

**E. Rejections under 35 U.S.C. § 103**

Claims 48-55 were rejected under 35 U.S.C. § 103(a) for allegedly being unpatentable over Paice or Wolf and U.S. Pat. No. 5,306,633 (hereinafter "Gottschalk"). Specifically, the Examiner alleged that Paice and Wolf teach a xylanase of SEQ ID NO:5 and that Gottschalk teaches the use of xylanases for increasing baking volume in baked goods. Further, the Examiner asserted that Gottschalk indicates that one would be motivated to search the art for other xylanases to increase baking volume. Applicants respectfully traverse this rejection as it may apply to the amended claims.

To establish a *prima facie* case of obviousness, three requirements must be met. First, all the claim limitations must be taught or suggested by the prior art. *See In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *See In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998). Third, there must be a reasonable expectation of success. *See In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Applicants' disclosure. *See in re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1998). Applicants assert that these requirements have not been met.

Claim 48 is directed to a dough for making a bakery product comprising a bacterial xylanase with the sequence of SEQ ID NO:5 and is less sticky than a dough comprising a

fungal xylanase. Claim 50 and dependents are drawn to a dough for making a bakery product comprising a bacterial xylanase of SEQ ID NO:5. Paice and Wolf do not teach the incorporation of the present enzyme in a foodstuff or dough, as discussed previously. Gottschalk does not remedy that deficiency.

Further, there would be no motivation to combine the teachings of Paice and Wolf with Gottschalk. Gottschalk discloses the use of a different bacterial xylanase with a different amino acid sequence, specifically with substitutions at amino acid residues 7, 13, 16, 21, 30, 43, 150, 171, 197 and 203. This enzyme disclosed in Gottschalk is discussed in the present specification on page 46, lines 25-6 as the "Röhm enzyme". In Gottschalk, the Paice xylanase (and by extension Wolf xylanase) is discussed in column 3, lines 34-55, and asserts that due to the amino acid substitutions, the Röhm enzyme is superior to the other xylanases, with a greater baking volume not previously observed with other xylanases. Gottschalk further distinguishes the Röhm enzyme from other xylanases as having rapid digestion of wheat mucins. Col. 5, ll. 20-24. Thus, Gottschalk actually *teaches away* from using the Paice enzyme in a baked good by distinguishing the Röhm enzyme's sequence from the Paice enzyme sequence and claiming the desirability of the Röhm enzyme properties arising from the sequence differences. Absent the teachings of the present specification, a person of skill in the art would have no reason or motivation to combine the industrial enzyme of Paice in the place of the Röhm enzyme in the baked goods of Gottschalk.

Even if the teachings were combined, there would be no expectation of successfully arriving at the claimed invention. First, Gottschalk points out the sequence differences between the Röhm enzyme and the Paice enzyme as leading to less desirable properties in the Paice enzyme. Neither Paice nor Wolf show any sort of usefulness of the Paice enzyme in a foodstuff or bakery product as they focus on the industrial applications of the enzyme. The present application is the first disclosure of using the amino acid sequence of SEQ ID NO:5 in a bakery product or dough. Absent the teaching of the present specification, one of skill in the art would have no reason to expect that the present enzyme would be suitable for inclusion in a foodstuff at all.

Finally, "[e]vidence that a compound is unexpectedly superior in one of a spectrum of common properties . . . can be enough to rebut a prima facie case of obviousness." *In re Chupp*, 816 F.2d 643, 646, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987) (Evidence showing that the claimed herbicidal compound was more effective than the closest prior art compound in controlling weeds in certain crops was sufficient to show nonobviousness, even though the claimed compound was an average performer on other crops.) The properties of a dough comprising the polypeptide of SEQ ID NO:5 is unexpectedly less sticky, which is beneficial in commercial handling of the dough. Undesirable stickiness of doughs comprising previously described xylanases is discussed on page 2, lines 16-33, of the specification. In Example 1, a dough comprising a polypeptide of SEQ ID NO:5 ("BX") is compared to a dough comprising the Röhme enzyme ("Röhme"), as well as doughs comprising other known fungal xylanases. As shown in Table 2 and Figure 1 of the specification, BX was less sticky than the fungal xylanases and even less sticky than the control. Even more surprising, BX was substantially less sticky than the Röhme enzyme, as shown in Table 4 and Figure 4. Therefore, doughs made with the polypeptide of SEQ ID NO:5 have the surprising desirable property of being less sticky.

A *prima facie* case for obviousness has not been met as the cited art does not teach limitations of the claims, does not contain any motivation to combine the teachings of the cited art, and provides no reasonable expectation of success. Further, the claimed invention has the unexpected and desirable property of being less sticky. Therefore, Applicants respectfully request that the rejection be withdrawn.

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a

check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date October 18, 2006

By Victoria S. Rutherford

FOLEY & LARDNER LLP  
Customer Number: 22428  
Telephone: (202) 672-5538  
Facsimile: (202) 672-5399

Victoria S. Rutherford  
Registration No. 52,253  
Agent for Applicants